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WATER SUPPLY OUTLOOK FOR WASHINGTON

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PROCUREMENT SECTION
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Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAR. 1, 1971

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR WASHINGTON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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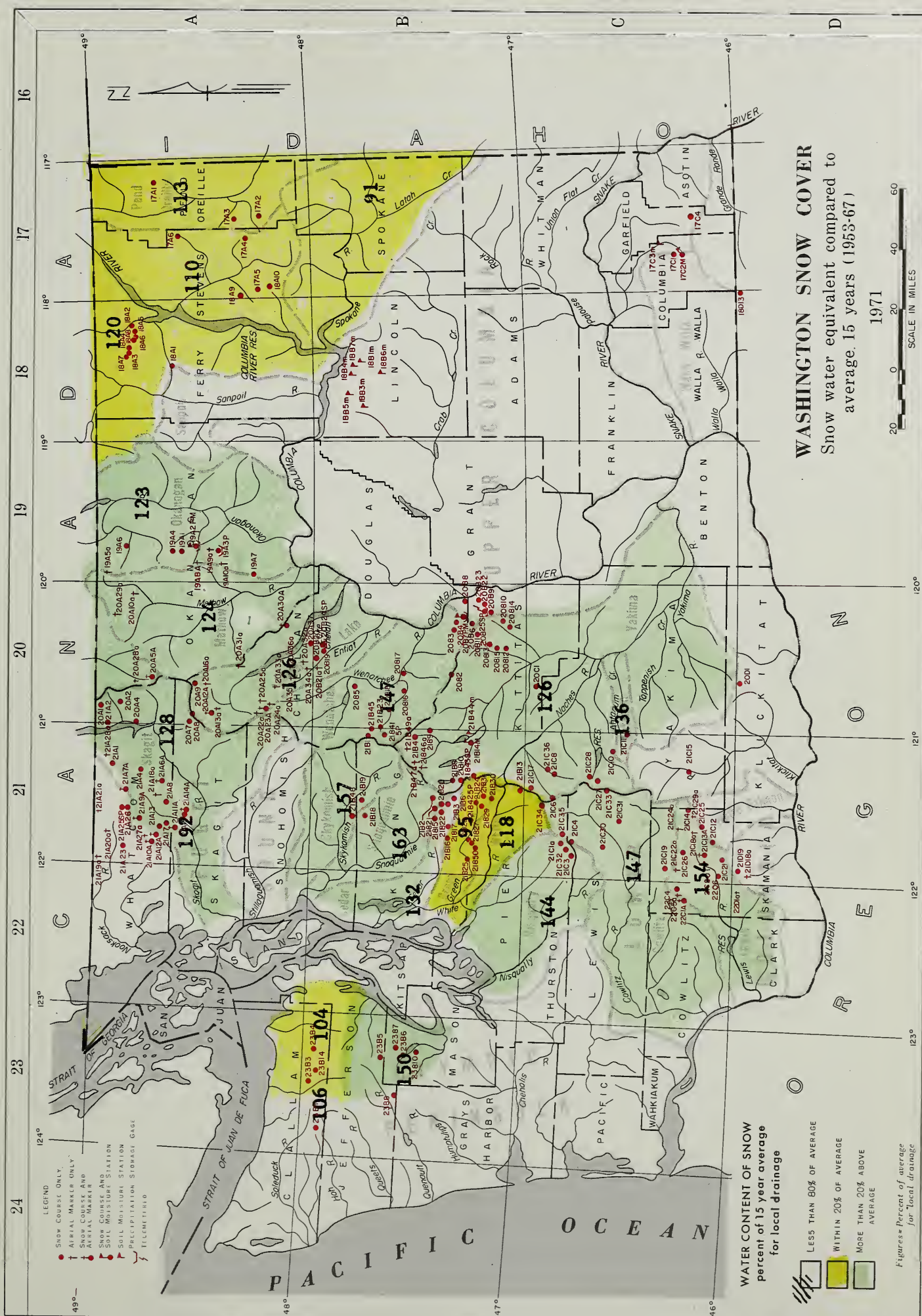
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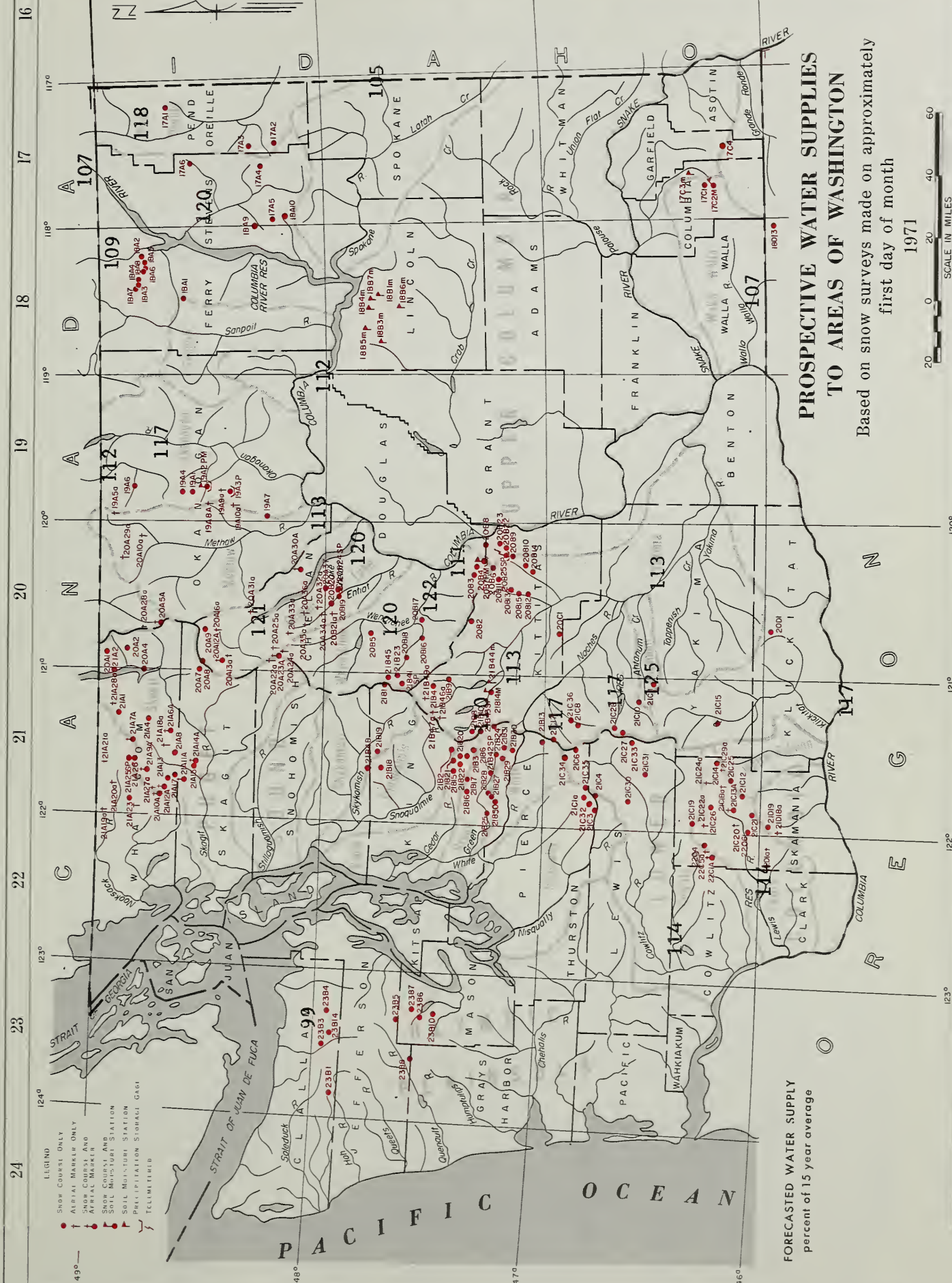
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WATER SUPPLY OUTLOOK

State of Washington
March 1, 1971

* * * * *

* The water supply outlook for irrigation and power in the Columbia *
* Basin in Washington and its tributary areas can still be consider- *
* ed very good for this time of year. Snow surveys made on the *
* first of March indicate a snowpack that ranges from a low of 9% *
* below normal to a high of 92% above. Incomplete results were the *
* story over most of the western Washington area due to storm per- *
* iods during the measurement times. Helicopter flights were *
* grounded and many of the snow courses were not measured in time *
* to be included in this report. This information will be publish- *
* ed with the April 1 snow results next month. While most of the *
* snow measurements were obtained prior to the storm period compar- *
* isons of the snowpacks with those measurements made after the *
* storm period are not truly comparable. A truer picture will be *
* obtained on April 1, hopefully, when all snow courses can be *
* measured without additional input of snow from one snow course to *
* the other during the measurement schedule. The snow courses all *
* have less water equivalent, percentagewise, than was reported *
* last month at this time. This is a result of the lack of precip- *
* itation input during the month of February. Valley precipitation *
* stations indicate that only the Columbia Basin in Canada and the *
* northwestern slopes of the Cascades had above-normal precipita- *
* tion input. With the exception of the Conconully reservoir and *
* Salmon Lake, all irrigation reservoirs have above-normal amounts *
* of water in storage as of March 1. Power reservoirs are all in *
* good shape having well above-average amounts of stored waters. *
* This increase in reservoir storage is a result of the above-nor- *
* mal flows during the month of February. Only the Okanogan River, *
* the Palouse River, the Walla Walla River and the Chehalis River *
* had below-normal runoff during the month of February. Of the re- *
* ported streams the Chelan River had the highest percentage runoff, *
* being 159% above normal. *

* * * * *

SNOW COVER

Only two snow courses in the Green River watershed were measured in time for this report and these two indicated the snowpack to be only 95% of normal. If all snow courses had been measured it is assumed that the snow cover in this area would also have been well above normal --approximately 20% above. This is the only watershed in the state that had below-normal snowpacks although the Spokane River in Idaho reported below-normal snow-water equivalent. The range of snow cover was 9% below normal on the above-mentioned Spokane River drainage to a high of 92% above normal on the Baker River. This, generally, is a 20% reduction from that which was reported last month although the overall situation is not as good as that which occurred in 1969. Normal conditions from this date forward will give adequate water supplies in all

areas of the state.

RESERVOIRS

As stated above all reservoirs with the exception of Conconully and Salmon Lake have above-normal amounts of water in storage. While these two reservoirs might not fill with the spring runoff all other reservoirs in the state are expected to waste water before runoff is through.

PRECIPITATION

During the month of February the United States Weather Bureau reported the Columbia drainage division in Canada had a precipitation that was 1% greater than average and the northwest slopes of the Cascades 7% greater. The other drainage divisions were all reported to have below-normal precipitation during the month with a range from 3% below to 31% below. The winter picture from November through February indicates that only northeast and southeast Washington have recorded below-normal amounts of precipitation. Other drainage divisions all report above normal ranging from 5% above to 27% above.

SOIL MOISTURE

The soil moisture situation has not changed markedly from that which was reported last month. There has been some drying of the soil mantle especially at lower elevations and some increase in the soil moisture at the median elevation sites. This is a normal situation and is resulting in near-normal soil mantle conditions as of March 1.

STREAMFLOW

All the major streams in Washington and tributary areas had above-normal runoff during the month of February. This, in spite of the general lack of precipitation. This runoff is a result of the melting of the snowpack at low and median elevation snow courses but even this was not enough to reduce the snow to a dangerous situation. Forecasts of streamflows range from 1% below normal for the Dungeness River near Sequim to 25% above normal for the Ahtanum Creeks as measured near Tampico. Most of the forecasts are in the 10% to 20% above-normal range. Numerical forecasts can be found elsewhere in this report.

STREAMFLOW FORECASTS - MARCH 1971

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1970 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet				
			Fore- cast Period	1970	1969	1968	15-Yr Average 1953-67
<u>COLUMBIA BASIN</u>							
<u>Columbia River System</u>							
Columbia River	49500	107	Apr-Sep	34443	47990	47182	46368
at Birchbank <u>1/</u>	40500	108	Apr-Jul	27808	40549	37092	37480
	29500	109	Apr-Jun	20918	32212	25280	27040
Columbia River							
at Grand Coulee <u>1/</u>	77500	112	Apr-Sep	54604	74687	63784	69458
	66000	112	Apr-Jul	46518	65696	51685	58899
	51900	113	Apr-Jun	37541	54604	38183	45889
Columbia River							
bl Rock Island Dam <u>1/</u>	85000	111	Apr-Sep	59163	80257	70298	76241
	71500	110	Apr-Jul	50711	71039	57403	64770
	57000	113	Apr-Jun	41070	59289	42326	50387
Columbia River							
at The Dalles, OR <u>1/</u>	123000	117	Apr-Sep	87067	108959	89008	105176
	106000	118	Apr-Jul	75146	96628	72494	90050
	86500	119	Apr-Jun	62267	82719	55499	72410
<u>Pend Oreille River System</u>							
Pend Oreille River							
bl. Box Canyon	18900	118	Apr-Sep	14234	16166	12869	15991
	17400	118	Apr-Jul	13267	15055	11077	14772
	15000	118	Apr-Jun	11627	13033	9471	12746
<u>Kettle River System</u>							
Kettle River							
nr. Laurier	2100	109	Apr-Sep	1123	2239	1851	1918
	2030	111	Apr-Jul	1092	2188	1720	1821
	1860	113	Apr-Jun	1027	2048	1560	1644

1/

Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. R. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - March 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet				
			Fore- cast Period	1970	1969	1968	15-Yr Average 1953-67
<u>Kettle River System (Cont.)</u>							
Colville River							
at Kettle Falls	184	120	Apr-Sep		270	63	153
	170	121	Apr-Jul		256	54	141
	158	121	Apr-Jun		240	50	131
<u>Spokane River System*</u>							
Spokane River							
at Post Falls ID <u>2</u> /	3300	105	Apr-Sep	2862		1681	3151
	3200	105	Apr-Jul	2770		1577	3055
	3060	105	Apr-Jun	2627		1487	2913
<u>Okanogan River System**</u>							
Similkameen River							
nr. Nighthawk	1710	112	Apr-Sep	861	1199	1449	1525
	1600	113	Apr-Jul	820	1150	1359	1419
	1400	117	Apr-Jun	751	1052	1158	1197
Okanogan River							
nr. Tonasket	2030	117	Apr-Sep	917	1450	1567	1738
	1850	117	Apr-Jul	859	1350	1429	1578
	1580	120	Apr-Jun	781	1230	1202	1318
<u>Methow River System**</u>							
Methow River							
nr. Pateros	1190	113	Apr-Sep		1060	973	1054
	1110	113	Apr-Jul		1013	906	981
	950	114	Apr-Jun		948	767	834
<u>Chelan River System</u>							
Chelan River							
at Chelan <u>3</u> /	1520	120	Apr-Sep	907	1337	1224	1266
	1370	122	Apr-Jul	821	1230	1069	1119
	1050	120	Apr-Jun	689	1093	798	870
Stehekin River							
at Stehekin	1090	121	Apr-Sep		961	868	904
	925	120	Apr-Jul		853	735	772
	700	119	Apr-Jun		748	535	586

* Forecasts made by Morland W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - March 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	%	15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet			
				Fore- cast Period	1970	1969	1968
<u>Wenatchee River System</u>							
<u>Wenatchee River</u>							
at Plain	1600	120	Apr-Sep		1443	1163	1333
	1450	120	Apr-Jul		1349	1028	1204
	1150	121	Apr-Jun		1217	812	952
<u>Wenatchee River</u>							
at Peshastin	2210	122	Apr-Sep	1420	1953	1526	1814
	2000	122	Apr-Jul	1324	1840	1355	1651
	1580	120	Apr-Jun	1138	1669	1087	1316
<u>Stemilt Basin</u>							
nr. Wenatchee	130*	--	May-Sep		145*	140*	
<u>Yakima River System</u>							
<u>Yakima River</u>							
nr. Martin <u>4/</u>	160	110	Apr-Sep	130	156	97	145
	149	111	Apr-Jul	121	144	79	134
	130	112	Apr-Jun	112	136	73	116
<u>Yakima River</u>							
at Cle Elum <u>5/</u>	1090	113	Apr-Sep		1051	695	968
	1020	115	Apr-Jul		977	589	885
	880	115	Apr-Jun		912	510	762
<u>Yakima River</u>							
nr. Parker <u>6/</u>	2000	113	Apr-Sep		1989	959	1772
	1980	113	Apr-Jul		2005	863	1752
	1820	113	Apr-Jun		1980	826	1608
<u>Kachess River</u>							
nr. Easton <u>7/</u>	140	110	Apr-Sep	112	139	76	128
	34	110	Apr-Jul	110	134	66	122
	119	111	Apr-Jun	104	128	62	107
<u>Cle Elum River</u>							
nr. Roslyn <u>8/</u>	550	113	Apr-Sep	429	496	358	485
	510	114	Apr-Jul	396	473	311	445
	430	115	Apr-Jun	345	440	264	373
<u>Bumping River</u>							
nr. Nile <u>9/</u>	175	117	Apr-Sep	129	150	105	150
	163	118	Apr-Jul	121	142	93	138
	130	115	Apr-Jun	107	133	73	114

* Thousands of Miners' Inches.

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

Streamflow Forecasts - March 1971 (Cont.)

Basin, Stream and Station	Forecast Runoff 1971	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet			
			Fore- cast Period	1970	1969	15-Yr Average 1953-67

Yakima River System (Cont.)American River

nr. Nile	150	116	Apr-Sep		138	98	129
	140	116	Apr-Jul		130	88	120
	115	116	Apr-Jun		120	78	99

Tieton River

at Tieton Dam <u>10/</u>	295	117	Apr-Sep	245	273	166	251
	255	118	Apr-Jul	211	244	134	215
	218	118	Apr-Jun	175	220	111	172

Naches River

nr. Naches <u>11/</u>	1250	115	Apr-Sep		994	592	899
	960	117	Apr-Jul		926	511	819
	810	116	Apr-Jun		857	437	698

Ahtanum Creeks

nr. Tampico <u>12/</u>	61	125	Apr-Sep		57	31	49
	56	125	Apr-Jul		53	27	45
	51	127	Apr-Jun		49	24	40

Lower Columbia River SystemMill Creek

nr. Walla Walla	31	107	Apr-Sep		32	15	29
	27	108	Apr-Jul		29	11	25
	24	104	Apr-Jun		27	10	23

Lewis River

at Arial <u>13/</u>	1550	114	Apr-Sep	869	1613	1173	1358
	1390	116	Apr-Jul	775	1431	895	1197
	1230	116	Apr-Jun	704	1303	798	1059

Cowlitz River

at Castle Rock <u>14/</u>	3210	114	Apr-Sep	2079	2965	2381	2813
	2860	115	Apr-Jul	1834	2641	1850	2481
	2410	114	Apr-Jun	1614	2359	1630	2119

OLYMPIC PENINSULADungeness River SystemDungeness River

nr. Sequim	171	99	Apr-Sep		195	134	172
	142	101	Apr-Jul		167	107	141
	109	104	Apr-Jun		139	78	105

10/ Observed flow corrected for storage in Rimrock Lake.11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.12/ Observed flow of North and South Forks (combined).13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about March 1, 1971, as per cent of the same date in 1970 and 1969 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1971 Snow Water Expressed as per cent of		
			1970	1969	1953-67

UPPER COLUMBIA BASIN

Pend Oreille	10 - 17	7 - 34	120	87	113*
Kettle	15	5 - 31	139	79	120*
Colville	5	9 - 12	105	67	110*
Spokane	7 - 8	9 - 26	119	85	91*
Okanogan	23 - 28	4 - 33	147	102	123*
Methow	5	8 - 33	121	76	124*
Chelan	1	17	173	116	126*
Entiat	8 - 9	4 - 10	136	102	--
Wenatchee	8 - 10	3 - 26	116	90	147*
Yakima	19 - 23	3 - 49	103	89	126*
Ahtanum	2	29	88	80	136*

LOWER COLUMBIA

Klickitat	1	13	110	98	--
Lewis	8 - 11	8 - 13	209	87	154*
Cowlitz	2	7 - 19	117	100	147*

PUGET SOUND

Nisqually	2 - 3	5 - 14	154	130	144*
White	1	19	102	87	118*
Green	1 - 2	9 - 24	135	77	95*
Cedar	5 - 7	10 - 12	243	65	132*
Snoqualmie	2 - 4	2	164	78	163*
Skykomish	2 - 3	3 - 26	143	100	157*
Skagit	2	13 - 23	170	116	128*
Baker	8 - 10	1 - 12	311	128	192*
Nooksack	4	2 - 4	182	120	--

OLYMPIC PENINSULA

Skokomish	4 - 5	7 - 13	205	105	150*
Elwha	1	11	161	76	106*
Dungeness	1	17	127	82	104*

* Records of less than 15 years used on computation of average

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE ^{1/} CAPACITY	1971	Measured (March) 1970	1969	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	154.2	148.1	85.0	149.4
Columbia	Franklin D. Roosevelt Lake	5232.0	4666.2	3464.7	141.2	2985.2
Columbia	Banks Lake	761.8	712.2	605.4	720.3	511.7
Okanogan	Conconully Reservoir	13.0	5.8	7.4	4.7	6.1
Okanogan	Salmon Lake	10.5	2.1	7.6	6.3	8.5
Chelan	Lake Chelan	676.1	257.0	96.7	166.2	243.7
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	123.0	59.6	96.5	99.0
Kachess	Kachess Lake	239.0	201.1	169.6	183.8	178.5
Cle Elum	Lake Cle Elum	436.9	231.3	171.8	262.9	266.0
Bumping	Bumping Lake	33.7	5.2	7.2	2.8	11.0
Tieton	Rimrock Lake	198.0	122.9	89.0	149.2	124.1
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1202.9	912.7	725.1	616.9	851.6
Skagit	Diablo Reservoir	90.6	83.4	85.3	87.8	85.9
Skagit	Gorge Reservoir	9.8	8.3	8.3	8.1	--

^{1/} Based on active storage

* 15-year average 1953-67

SOIL MOISTURE - MARCH

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches):	Soil Moisture Content		
				Total : Capacity:	(Inches) as of Mar. 1		
					1971	1970	1969
<u>CRAB CREEK</u>							
Jack Woods	18B3m	2600	48	13.6	9.8	9.4	7.9
Krause	18B4m	2440	48	13.6	6.2	9.0	8.1
Sheffels	18B5m	2360	48	13.6	7.7	8.4	5.8
Sherman	18B7m	2440	48	13.6	7.8	8.9	6.1
Wheatridge	18B6m	2200	48	13.6	10.5	9.8	7.0
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	3.6	2.4	3.0
Trout Creek	3-M	3600	48	7.3	3.2*	3.3*	3.3
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	5.0	6.0	--
Lake Cle Elum	21B14M	2200	48	12.8	9.2	9.2	--
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	10.1	10.5	10.4
Helmers	17C2M	4400	48	12.0	10.7	10.9	10.6
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	10.1	7.1	8.9

* Feb 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches):	Soil Moisture Content		
				Total : Capacity:	(Inches) as of Oct. 1		
					1970	1969	1968
<u>CRAB CREEK</u>							
Jack Woods	18B3m	2600	48	13.6	7.0	7.5	7.1
Krause	18B4m	2440	48	13.6	4.4	5.9	5.2
Sheffels	18B5m	2360	48	13.6	4.4	4.5	4.9
Sherman	18B7m	2400	48	13.6	3.8	4.2	3.9
Wheatridge	18B6m	2200	48	13.6	7.8	5.4	4.6
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	1.7	2.7	2.7
Trout Creek	3-M	3600	48	7.3	3.4*	3.8*	4.1
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	2.4	--	3.1
Lake Cle Elum	21B14M	2200	48	12.8	7.6	--	5.2
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	5.9	6.1	7.4
Helmers	17C2M	4400	48	12.0	7.3	7.1	7.6
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	5.1	9.8	5.5

* Nov 1 measurement

PRECIPITATION 1/

Division Averages and Departures

Drainage Divisions	FALL		WINTER	
	Sep - Oct Average	1970 <u>2/</u> Departure	Nov - 1970 - Feb - 1971 <u>2/</u> Average	Departure
Columbia in Canada	3.64	-0.25	13.42	+2.23
Pend Oreille - Spokane	4.30	+0.42	16.24	+0.76
Northeastern Washington	3.16	+0.91	9.03	-0.42
Southeastern Washington	3.59	+0.94	9.55	-0.79
Central Washington	3.05	-1.39	27.27	+3.59
North Central Washington	1.36	-0.05	7.04	+1.50
Northwest Slope Cascades	12.29	+0.62	50.92	+6.41
Southwest Slope Cascades	7.74	+0.02	42.18	+7.69

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
Southeastern Washington	- Touchet, Tucannon and Palouse drainages.
Central Washington	- Yakima, Wenatchee and Chelan drainages.
North Central Washington	- Methow and Okanogan drainages.
Northwest Slope Cascades	- Puget Sound drainages.
Southwest Slope Cascades	- Lower Columbia drainages.

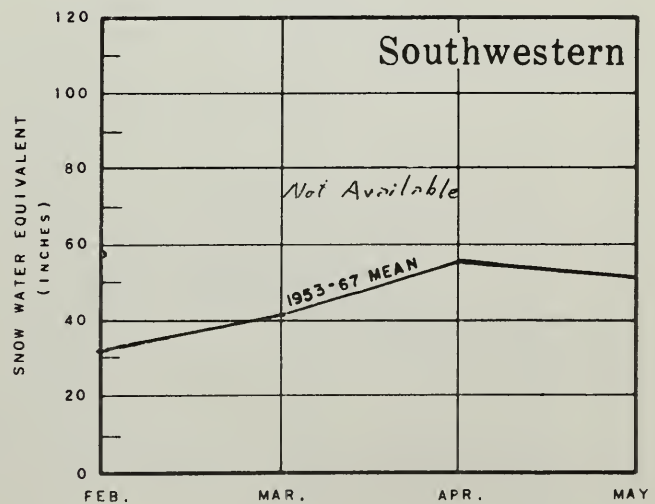
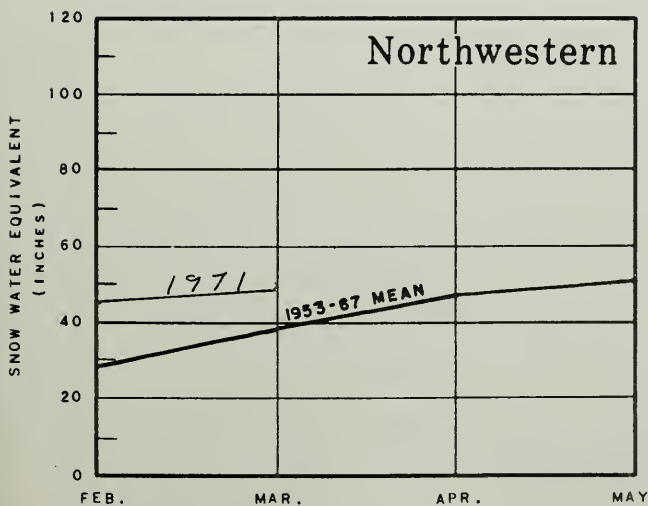
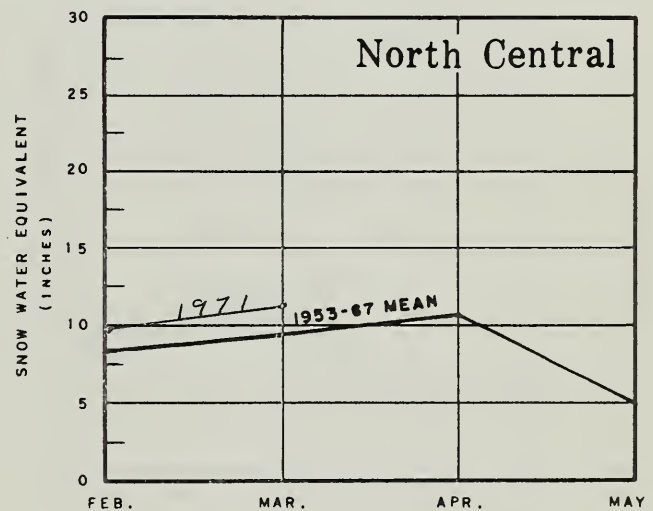
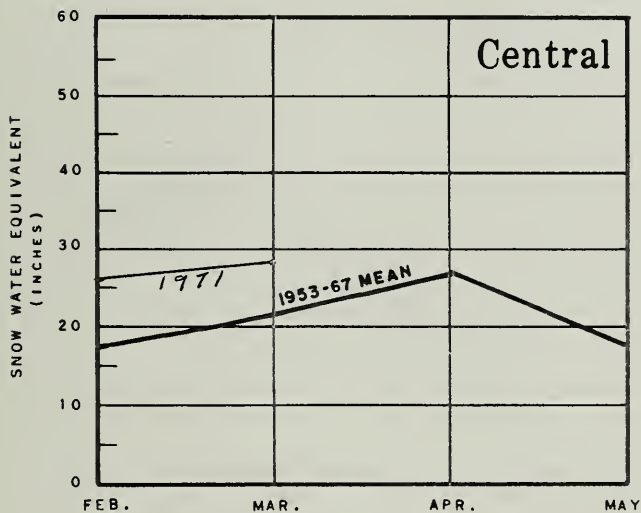
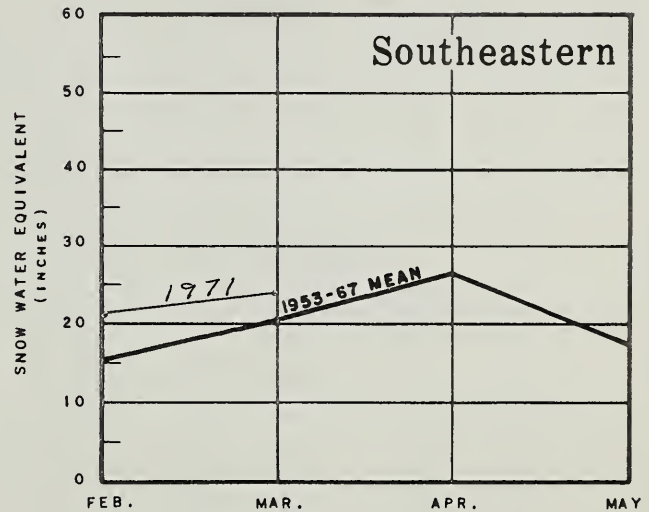
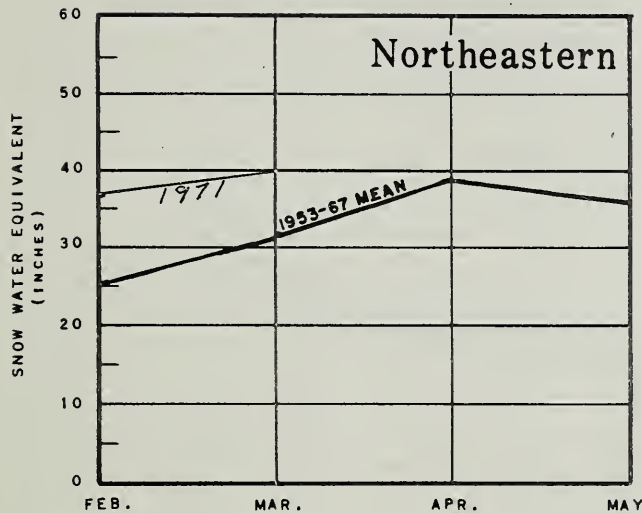
1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau.

2/ - Departure from 15-year (1953-67) drainage division average.

WASHINGTON SNOW COVER

1971

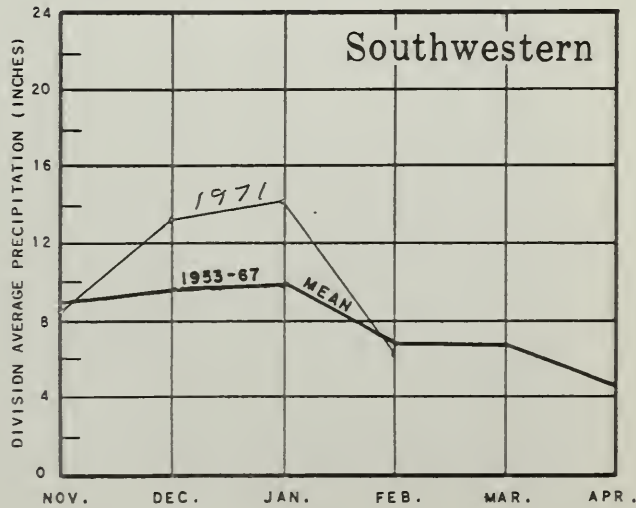
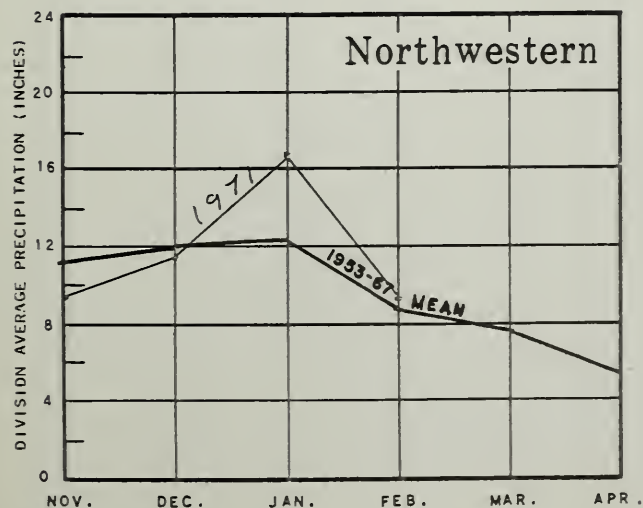
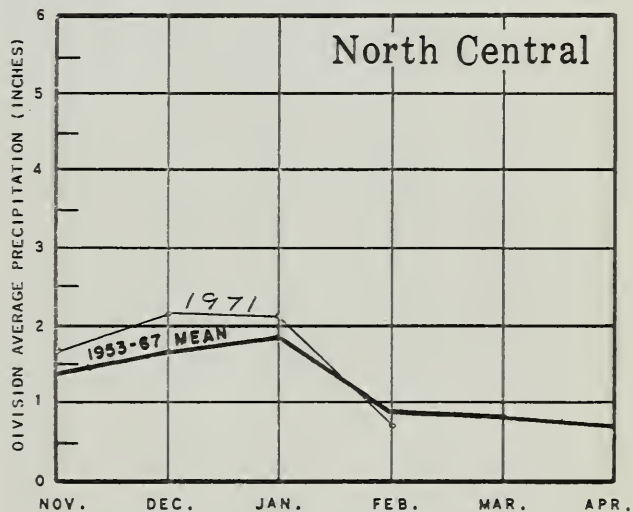
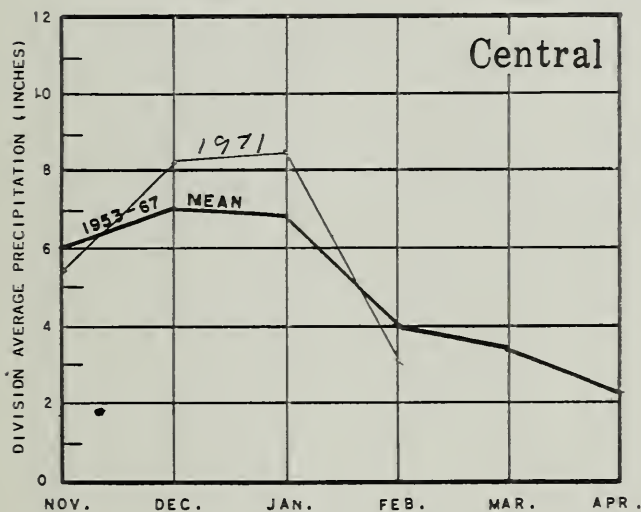
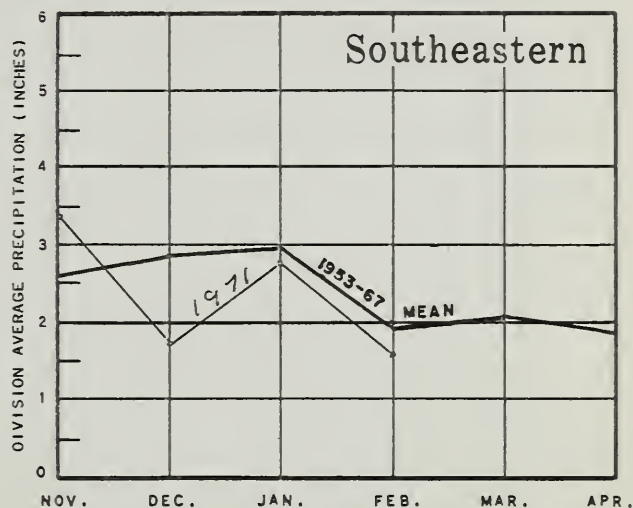
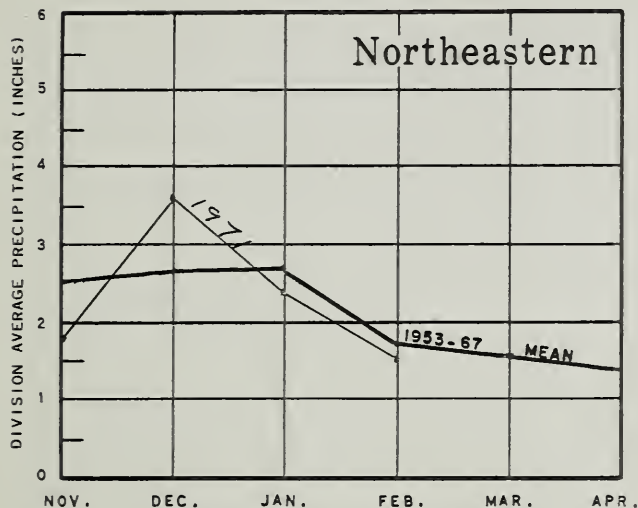
DRAINAGE AREAS



WASHINGTON VALLEY PRECIPITATION

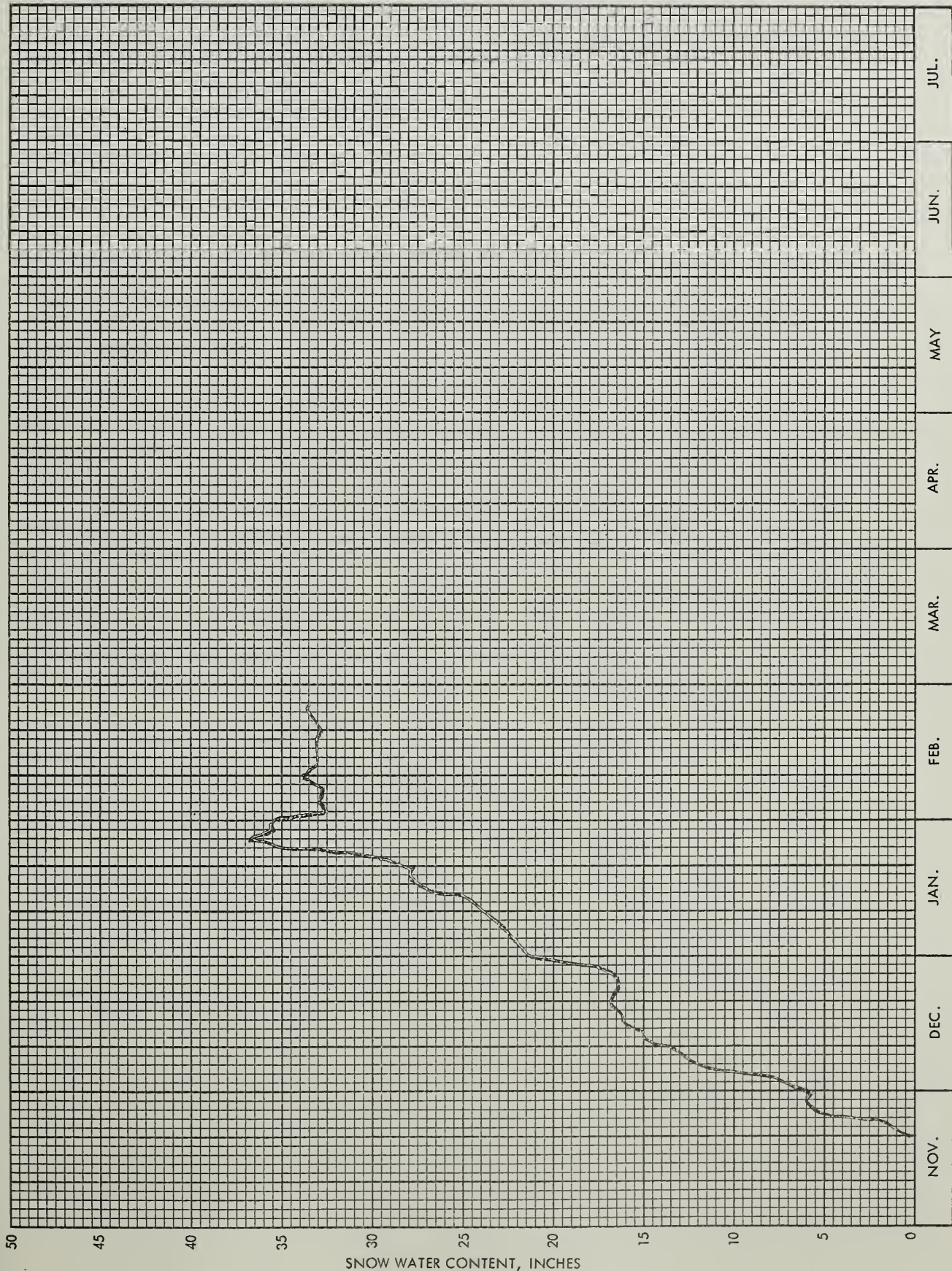
1970-1971

DRAINAGE AREAS



SNOW PILLOW DATA
Berne-Mill Creek
1970-71

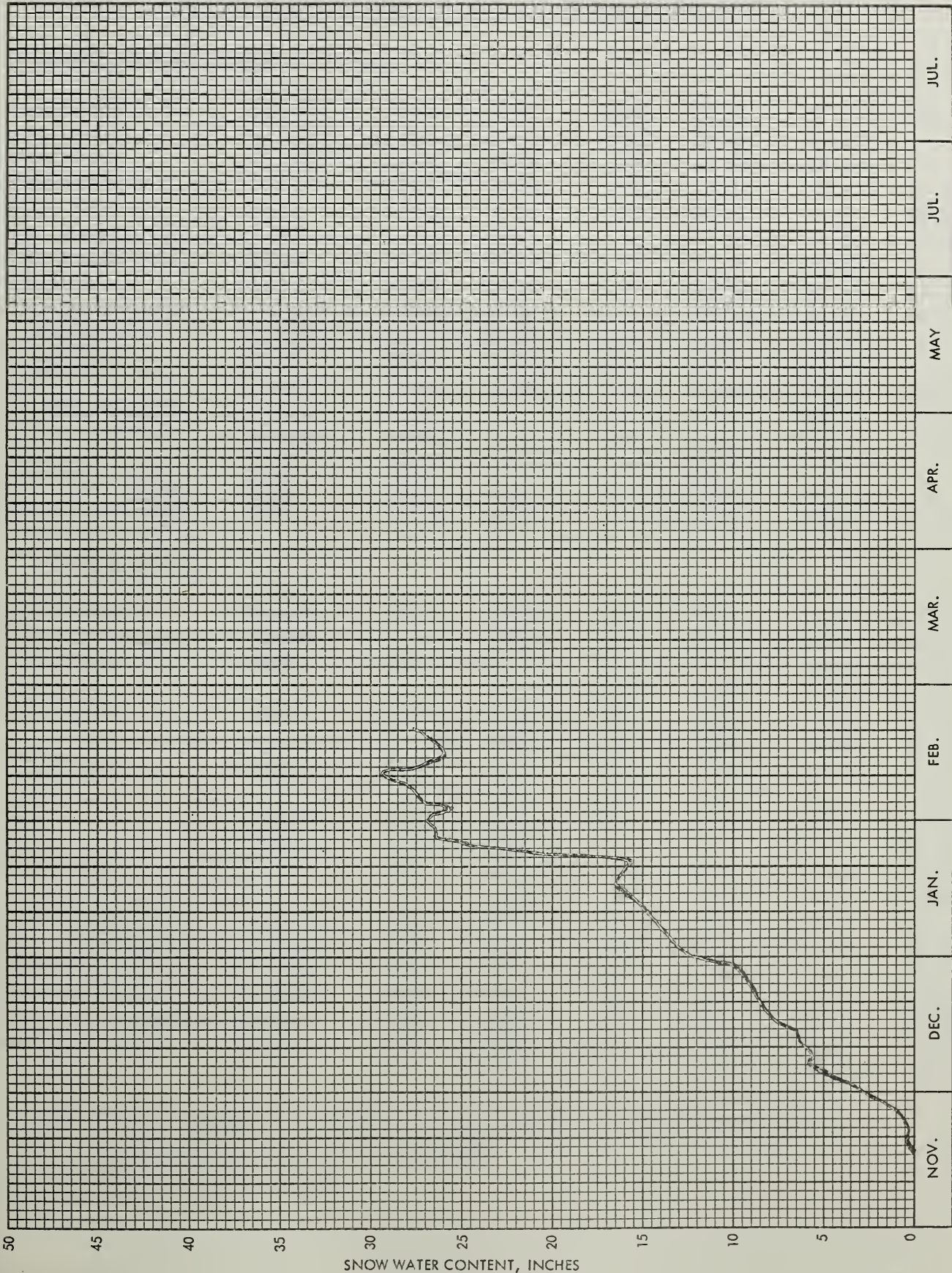
Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee River
Lat. 47° 46' Long. 121° 01' Elev. 3170'



SNOW PILLOW DATA
Cougar Mountain - FS
1970-71

Sec. 28 T. 21N R. 9E No. 21B42SF Drainage: Green River

Lat. 47° 17' Long. 121° 40' Elev. 3200'



APPENDIX 1

SNOW DATA FEBRUARY 1 to MARCH 1, 1971

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	No.	Elevation				Last Year	Average ††

U P P E R C O L U M B I A D R A I N A G EPEND OREILLE RIVER

Baree Creek	15B11	5500	2/28	120	48.0	37.6	--
Baree Midway	15B16	4600	2/28	97	38.8	31.3	--
Baree Trail	15B15	3800	2/28	36	13.0	12.0	--
Benton Meadow	16A2	2344	2/26	19	7.1	8.8	5.8
Benton Spring	16A3	4900	2/26	50	16.3	19.0	18.2
Boyer Mountain	17A2	5250	2/25	71	27.6	22.8	23.4
Brush Creek	14A4	5000	2/24	37	11.4	10.0	11.7
#Chewelah	17A4	4925	2/27	46	14.9	14.1	16.5
Heart Lake Trail	14C10	4800	2/26	80	28.4	15.8	20.2*
Hoodo Basin	15C10	4800	2/26	149	56.2	39.3	--
Hoodo Creek	15C1	6200	2/26	141	51.6	37.7	42.9*
Lookout	15B2	5250	2/26	108	40.0	31.9	32.3
Mosquito Ridge +	16A4A	5100	3/2	111	41.1	38.4	33.8*
Nelson	Canada	3050	2/26	46	14.6	12.1	14.4**
Schweitzer Bowl	16A6	4500	2/25	80	31.5	25.7	--
Schweitzer Ridge	16A5	6100	2/25	112	43.3	33.5	--
Winchester Creek	17A3	2970	2/25	39	13.9	13.3	11.5*

KETTLE RIVER

Barnes Creek	Canada	5500	2/26	62	19.8	11.3	17.1**
Big White Mountain	Canada	5500	2/28	66	16.2	12.5	18.2**
Boulder Road	18A2	1450	2/10	22	7.3	4.3	4.3*
			2/23	22	7.0	4.0	3.5*
Butte Creek	18A3	4070	2/10	29	8.6	6.7	8.1*
			2/23	31	9.3	8.3	8.7*
Cabin Creek	18A8	3170	2/10	28	7.8	6.3	7.5*
			2/23	31	8.7	7.7	7.7*
Carmi	Canada	4100	2/28	22	6.8	5.3	5.8**
Farron	Canada	4000	2/26	42	13.7	10.7	12.3**
Goat Creek	18A4	3595	2/10	25	8.2	6.6	6.9*
			2/23	24	7.6	6.9	6.6*
#Lower Esperon Cr.	Canada	4270	3/1	49	13.3	8.4	--
Lower Trapping Cr.	Canada	3050	2/28	20	5.9	4.0	4.9**
#Middle Esperon Cr.	Canada	4580	3/1	63	17.9	11.0	--
#Mcenashee Pass	Canada	4500	2/26	44	12.9	7.3	12.6**
Old Glory Mountain	Canada	7000	2/27	82	27.8	17.1	24.3**
Snow Caps Creek	18A5	2150	2/10	21	6.8	5.0	4.6*
			2/23	22	7.0	4.5	4.2*

+ Snow water equivalent estimated from aerial stadia observations

Not located directly on this drainage

* Adjusted 1953-67 average

** Average for years of record

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average ††

KETTLE RIVER (Cont.)

Snow Caps Trail	18A6	2720	2/10	24	7.2	5.2	6.1*
			2/23	25	8.1	6.4	6.1*
Summit G. S.	18A7	4600	2/10	23	6.3	5.7	8.0*
			2/23	25	6.9	6.6	8.3*
#Upper Esperon Cr.	Canada	5290	3/1	74	21.9	12.8	--
Upper Trapping Cr.	Canada	5500	2/28	37	9.5	6.5	8.3**

COLVILLE RIVER

Baird	17A6	3215	2/28	23	5.5	7.6	7.0*
Carlson	18A9	2885	2/28	17	4.2	5.0	4.8*
Chewelah	17A4	4925	2/27	46	14.9	14.1	16.5*
Stranger Mountain	17A5	4990	2/27	56	17.0	13.7	12.4*
Togo	18A10	3370	2/28	49	14.6	10.4	9.4*

SPOKANE RIVER

Above Burke	15B8	4100	2/26	79	28.6	17.1	--
Copper Ridge	16B2	4800	3/1	75	28.4	24.8	26.0
Forty-nine Meadows +	15B3	5000	3/2	93	32.8	24.2	28.6*
Fourth of July Summit	16B3	3100	2/26	31	8.1	9.5	10.5*
Granite Peak +	15B13A	6000	3/2	134	41.3	33.2	41.8*
#Lookout	15B2	5250	2/26	108	40.0	31.9	32.3
Lost Lake +	15B14A	6000	3/2	165	56.4	46.6	53.6*
Lower Sands Creek	16B1	3400	2/25	63	19.5	17.6	17.8
Medicine Ridge +	15B4A	6150	3/2	139	43.2	34.0	43.6*
#Mosquito Ridge +	16A4A	5110	3/2	111	41.1	38.4	33.8
Outlaw Creek +	15B12A	3750	3/2	60	16.9	11.2	13.7*
Roland Summit +	15B5A	5200	3/2	94	34.8	29.7	34.6*
Sherwin	16C1	3200	3/1	43	13.4	11.1	14.1*
Sunset +	15B9A	5600	Not Measured			30.4	29.9*

OKANOGAN RIVER

Aberdeen Lake	Canada	4300	2/26	22	4.3	5.6	6.0**
Blackwall Peak	Canada	6250	2/26	108	42.4	23.6	30.5**
Bouleau Creek	Canada	5000	2/25	41	13.0	8.9	10.0**
Bouleau Lake	Canada		2/27	57	13.5	New Course	
Brenda Mine	Canada	4800	2/26	47	14.1	9.2	--
Brookmere	Canada	3200	2/28	41	13.2	7.7	8.9**

+ Snow water equivalent estimated from aerial stadia observation

Not located directly on this drainage

* Adjusted 1953-67 average

** Average for years of record

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average ⁺

OKANOGAN RIVER (Cont.)

Carrs Landing Lower	Canada	2250	3/1	5	1.0	1.7	1.6**
Carrs Landing Upper	Canada	3200	Late Report			5.2	4.4**
Clark +	19A8a	7000	2/26	63	22.7	--	--
Copper Mountain	Canada	4300	Late Report			6.1	5.9**
Enderby	Canada	6250	2/25	122	37.0	27.4	31.8**
#Freezeout Meadows	20A2	5000	Late Report			19.3	28.2
Hamilton Hill	Canada	4900	Late Report			12.7	13.3**
#Harts Pass	20A5A	6500	3/1	126	49.6	29.9	38.5
#Horseshoe Basin +	19A5a	7000	2/28	54	21.6	--	11.6*
Isintok Lake	Canada	5510	2/27	32	8.2	4.9	6.6**
Lost Horse Mountain	Canada	6300	3/1	42	9.6	4.8	7.5**
#Loup Loup	19A7	4650	3/1	44	12.0	9.9	8.9*
Lower Esperon Creek	Canada	4270	3/1	49	13.3	8.4	--
McCulloch	Canada	4200	2/25	29	7.1	5.0	6.3**
Middle Esperon Creek	Canada	4580	3/1	63	17.9	11.0	--
Missezula Mountain	Canada	5100	Late Report			6.2	8.5**
Mission Creek	Canada	6000	2/27	71	22.9	11.1	16.7**
Monashee Pass	Canada	4500	2/26	44	12.9	7.3	12.6**
Mount Kobau	Canada	5950	2/26	41	13.3	10.8	11.9**
Muckamuck +	19A9a	6390	2/26	53	19.1	--	--
Mutton Creek No. 1	19A1	5700	2/24	43	15.9	12.0	12.3
Mutton Creek No. 2	19A4	6000	2/24	48	16.6	12.2	12.7
New Copper Mountain	Canada	4300	Late Report			6.8	5.5**
New Penticton Res.	Canada	6200	2/25	43	7.2	--	--
Nickel Plate Mtn.	Canada	6200	3/1	42	11.9	5.6	6.7**
Paysayten +	20A28a	4300	Not Measured			14.1	--
			3/1	58	23.2	16.3	14.2*
Postill Lake	Canada	4500	2/26	34	8.2	6.6	7.3**
Rusty Creek	19A3	4000	2/24	20	7.5	7.3	7.0
Salmon Meadows	19A2	4500	2/24	35	11.2	9.8	9.7
Silver Star Mountain	Canada	6050	3/2	82	29.2	18.1	22.6**
Starvation Mountain +	19A10a	6750	2/26	57	20.5	--	--
Summerland Res.	Canada	4200	2/28	39	10.8	6.7	8.2**
Touts Coulee	19A6	2845	2/25	17	5.2	4.3	3.7*
Trout Creek	Canada	4700	2/26	37	8.4	5.5	6.3**
Upper Esperon Creek	Canada	5290	3/1	74	21.9	12.8	--
White Rocks Mtn.	Canada	6000	2/25	77	24.7	15.3	17.9**

+ Snow water equivalent estimated from aerial stadia observations

Not located directly on this drainage

* Adjusted 1953-67 average

** Average for years of record

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average $\dagger\dagger$

METHOW RIVER

Billy Goat Pass +	20A10a	6409	2/28	123	49.2	26.9	25.8*
Dollar Watch +	20A29a	7000	2/28	81	32.4	26.5	23.7*
Harts Pass	20A5A	6500	3/1	126	49.6	29.9	38.5
Horseshoe Basin +	19A5a	7000	2/28	54	21.6	14.6	11.6*
Loup Loup	19A7	4650	3/1	44	12.0	9.9	8.9*
#Mutton Creek No. 1	19A1	5700	2/24	43	15.9	12.0	12.3
#Mutton Creek No. 2	19A4	6000	2/24	48	16.6	12.2	12.7
#Rusty Creek	19A3	4000	2/24	20	7.5	7.3	7.0
#Salmon Meadows	19A2	4500	2/24	35	11.2	9.8	9.7
#War Creek Pass +	20A31a	6500	3/1	150	60.0	25.8	--

CHELAN LAKE BASIN

Cloudy Pass +	20A22a	6500	3/1	122	48.8	25.5	34.9*
Greenwood Flat +	20A25a	3540	Marker down		--	--	--
Little Meadows +	20A24a	5275	3/1	129	51.6	33.0	37.5*
Lyman Lake	20A23A	5900	3/1	181	72.4	36.4	50.3*
Park Creek Flat +	20A13a	2220	3/1	100	40.0	25.8	31.0*
Park Creek Ridge	20A12A	4600	3/1	137	54.8	32.0	41.7*
Petersons +	20A16a	3730	3/1	108	43.2	25.2	32.5*
Rainy Pass	20A9	4780	3/1	118	46.8	27.0	37.0
Safety Harbor	20A30A	6300	3/1	98	39.2	16.3	--
War Creek Pass +	20A31a	6500	3/1	150	60.0	25.8	--

ENTIAT RIVER

Brief	20B19	1600	2/26	28	10.0	10.0	6.3*
Entiat Meadows +	20A33a	4800	3/1	142	51.1	34.0	--
Entiat River Tr. +	20A34a	3150	3/1	60	24.2	19.7	--
Fox Camp +	20A36a	6510	3/1	158	56.9	44.2	--
Pope Ridge	20B20	4300	2/24	54	21.6	16.8	--
Pugh Ridge +	20A32a	6400	3/1	109	39.2	34.0	--
Shady Pass	20A37	5000	2/25	88	32.0	19.0	--
Snow Brushy +	20A35a	3850	3/1	129	46.4	30.7	--
Tommy Creek +	20B21a	5300	3/1	97	34.6	23.1	--

WENATCHEE RIVER

Berne-Mill Creek	21B23	2925	2/16	78	33.7	25.5	24.0*
			2/26	88	34.4	28.3	23.9*
Berne-Mill Creek New	21B41SP	3240	2/26	72	32.8	28.6	--

+ Snow water equivalent estimated from aerial stadia observations

* Adjusted 1953-67 average

Not located directly on this drainage

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average
<u>WENATCHEE RIVER (Cont.)</u>							
Blewett Pass No. 2	20B2	4270	2/26	48	19.4	19.1	13.8
Chiwaukum G. S.	20B16	1810	2/16	41	15.5	14.2	10.5*
			2/26	43	16.1	16.2	10.5*
#Fish Lake	21B4	3371	2/24	100	46.4	31.1	31.7*
Lake Wenatchee	20B5	1970	2/16	44	19.3	14.1	13.0*
			2/26	46	18.8	14.7	13.4*
Leavenworth R. S.	20B17	1127	2/12	18	6.7	9.5	4.3*
			2/26	10	4.5	7.3	2.6*
#Lyman Lake	20A23A	5900	3/1	181	72.4	36.4	50.3*
Merritt	20B18	2140	2/16	42	19.2	17.4	14.6*
			2/26	47	19.1	17.8	13.7*
Stevens Pass	21B1	4070	2/16	133	58.7	42.0	40.3
			2/26	152	62.1	43.9	44.4
Stevens P. Sand Shed	21B45	3700	2/16	93	41.0	29.6	--
			2/26	106	43.3	32.6	--
<u>SQUILCHUCK CREEK</u>							
Beehive Springs	20B3	4400	2/25	14	5.7	12.3	6.5*
Scout-A-Vista	20B4	3400	3/1	28	8.8	11.7	7.0*
<u>STEMILT CREEK</u>							
Jump-Off	20B8	4450	2/26	20	7.0	12.4	6.8*
Stemilt Slide	20B6	5000	2/26	37	14.1	14.4	12.6*
Upper Wheeler	20B7	4400	2/26	24	9.1	13.6	8.5*
<u>COLOCKUM CREEK</u>							
Colockum Creek Upper	20B22	5300	2/24	28	11.0	16.8	--
Colockum Creek Lower	20B23	4300	2/24	26	8.9	13.8	--
<u>YAKIMA RIVER</u>							
#Ahtanum R. S.	21C11	3100	2/24	19	7.1	11.2	5.9*
Big Boulder Creek	21B9	3200	2/24	62	26.7	23.0	18.5*
#Blewett Pass No. 2	20B2	4270	2/26	48	19.4	19.1	13.8
Bumping Lake	21C8	3450	2/12	45	21.2	25.1	15.1*
			3/1	54	22.8	25.2	15.3
Bumping Lake New	21C36	3400	2/12	57	25.6	28.2	--
			3/1	63	26.4	27.9	--

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

Not located directly on this drainage

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average ††

YAKIMA RIVER (Cont.)

#Cayuse Pass	21C6	5300	3/1	246	102.7	63.0	71.6*
Colockum Pass	20B9	5370	2/25	50	17.4	19.7	14.9*
Cooke Creek	20B10	4123	2/25	24	7.5	10.0	5.6*
#Corral Pass	21C13	6000	3/1	124	45.8	30.7	33.2*
Fish Lake	21B4	3371	2/24	100	46.4	31.1	31.7*
Green Lake	21C10	6000	2/24	100	38.8	34.3	25.7*
Grouse Camp	20B11	5385	2/26	42	15.5	19.5	16.1*
High Creek	20B12	2930	2/26	24	8.4	8.0	5.1*
Joe Lake	21B46a	4624	Marker down			55.9	--
Lake Cle Elum	21B14M	2200	2/12	11	4.4	12.1	8.5*
			2/28	14	4.7	12.2	8.5*
Lemah Creek +	21B47a	3327	3/1	115	49.4	45.6	--
Manashtash	20C1	3935	2/24	12	3.8	9.6	4.0*
Morse Lake	21C17	5400	2/25	158	55.6	54.5	47.0*
Nanum	21B39	2340	2/26	36	10.6	12.8	9.8*
#Olallie Meadows	21B2	3625	2/20	137	61.6	37.3	40.4
#Satus Pass	20D1	4030	2/25	37	14.1	12.8	--
#Stampede Pass	21B10	3000	2/15	114	35.2	37.6	34.8
			2/28	132	36.3	33.6	38.4
Trail Creek	20B14	3360	2/25	0	0.0	0.0	--
Tunnel Avenue	21B8	2450	2/16	62	25.8	19.0	20.2*
			2/28	76	28.9	21.8	21.6
Van Epps Pass	20B26a	5925	3/1	147	63.2	New Marker	
Walters Flat	20B15	3360	2/26	26	8.6	9.8	6.6*
Waptus Lake +	21B49a	3024	3/1	126	54.2	30.6	--
White Pass (E. Side)	21C28	4500	2/17	68	30.0	21.7	21.5*
			3/2	80	32.3	24.1	21.1*
White Pass (L. Lake)	21C27	4500	2/17	76	34.8	26.2	22.6*
			2/24	73	29.8	30.3	26.1*

AHTANUM CREEK

Ahtanum R. S.	21C11	3100	2/24	19	7.1	11.2	5.9*
#Green Lake	21C10	6000	2/24	100	38.8	34.3	25.7*

LOWER COLUMBIA DRAINAGEASOTIN CREEK

Spruce Springs	17C4	5700	2/22	55	20.7	23.9	--
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+ Snow water equivalent estimated from aerial stadia observations

Not located directly on this drainage

* Adjusted 1953-67 average

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average ++

MILL CREEK

Homestead	17C1	4030	2/25	14	5.0	5.2	7.4*
Martin Springs	17C2	4400	2/25	27	10.4	11.6	12.5*
Tollgate	18D3M	5070	2/25	57	22.8	26.2	21.0

KLICKITAT RIVER

Satus Pass	20D1	4030	2/25	37	14.1	12.8	--
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WHITE SALMON RIVER

Cultus Creek	21C12	4000	Late Report			35.4	38.9*
#Surprise Lakes	21C13A	4250	Late Report			39.8	42.0

WIND RIVER

#Old Man Pass	21D19	3100	Late Report			9.6	15.8*
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LEWIS RIVER

Blue Lake +	21C22a	4800	3/1	238	90.4	76.6	70.4*
Bob's Trail	21C21	2200	2/24	57	22.7	5.6	12.4*
Calamity Ridge +	22D1a	2500	3/1	47	16.4	0.0	--
Council Pass +	21C18a	4200	3/1	136	54.9	31.9	34.8*
#Cultus Creek	21C12	4000	Late Report			35.4	38.9*
Divide Meadow +	21C29a	5600	Late Report			43.3	47.7*
Grand Meadow	21C25	3500	2/25	84	31.2	19.2	22.9*
Lone Pine Shelter	21C26	3800	Late Report			26.9	31.4*
Marble Mountain +	22C5a	3200	3/1	140	57.4	12.0	--
#Mosquito Meadows	21C19	4100	Late Report			27.7	34.4*
New Muddy River	22C6	2200	2/24	33	14.7	0.0	--
Old Man Pass	21D19	3100	Late Report			9.6	15.8*
Plains of Abraham +	22C1a	4400	3/1	202	78.8	78.8	55.7*
Smith Creek Road	22C4	2100	2/24	59	27.2	13.2	13.9*
Spencer Meadow +	21C20a	3400	Late Report			9.6	20.5*
Surprise Lakes	21C13A	4250	Late Report			39.8	42.0
Table Mountain +	21C24a	4200	3/1	153	59.7	38.8	40.6*
Timbered Peak +	21D18a	3000	3/1	58	23.0	2.5	16.4*

COWLITZ RIVER

Cayuse Pass	21C6	5300	3/1	246	102.7	63.0	71.6*
Mosquito Meadows	21C19	4100	Late Report			27.7	34.4*

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SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	No.	Elevation				Last Year	Average ††

COWLITZ RIVER (Cont.)

Ohanapecosh	21C32	2200	2/24	63	28.0	10.5	14.8*
Packwood Lake	21C31	2870	3/3	60	22.1	6.2	12.0*
Pigtail Peak	21C33	5900	2/17	154	68.3	43.1	--
			2/25	174	69.7	44.3	--
#Plains of Abraham +	22C1a	4400	3/1	202	78.8	78.8	55.7*
Potato Hill	21C14	4500	Late Report			27.6	25.7
#White Pass (E. Side)	21C28	4500	2/17	68	30.0	21.7	21.5*
			3/2	80	32.3	24.1	21.1*
#White Pass (L. Lake)	21C27	4500	2/17	76	34.8	26.2	22.6*
			2/24	73	29.8	30.3	26.1*
Willame Creek	21C30	3250	3/1	107	42.4	18.0	27.0*

PUGET SOUND DRAINAGENISQUALLY RIVER

Ghost Forest	21C4	4550	2/26	149	56.0	33.3	38.8*
Longmire	21C3	2760	2/24	45	21.2	4.2	8.4*
New Paradise Park	21C35	5500	2/26	196	82.0	59.8	--
Stem Glade	21C1	5050	3/1	209	85.3	54.3	59.4*

WHITE RIVER

#Cayuse Pass	21C6	5300	3/1	246	102.7	63.0	71.6*
Corral Pass	21C13	6000	3/1	124	45.8	30.7	33.2*
#Morse Lake	21C17	5400	2/25	158	55.6	54.5	47.0*

GREEN RIVER

Airstrip	21B24	1800	Late Report			0.0	--
Charley Creek	21B25	1200	Late Report			0.0	--
Cougar Mountain SP	21B42SP	3200	2/20	63	27.0	--	--
Grass Mountain No. 2	21B27	2900	Late Report			15.1	18.1*
Grass Mountain No. 3	21B28	2100	Late Report			0.0	--
Lester Creek	21B29	3100	Late Report			18.0	20.7*
Lynn Lake	21B50	4000	Late Report			11.1	--
Sawmill Ridge	21B29	4700	Late Report			24.6	36.5*
Snowshoe Butte SP	21B43SP	5000	2/20	148	64.0	39.4	--

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SNOW

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GREEN RIVER (Cont.)

Stampede Pass	21B10	3000	2/15	114	35.2	37.6	34.8
			2/28	132	36.3	33.6	38.4
Twin Camp	21B30	4100	Late Report			11.1	--

CEDAR RIVER

City Cabin	21B3	2390	2/24	54	23.9	11.1	14.8*
Mt. Gardner	21B21	3300	2/24	56	23.6	7.4	15.4*
Mt. Lindsay	21B16	2500	2/27	68	22.0	8.4	12.9*
Mt. Washington	21B15	3000	2/24	24	8.4	0.0	7.2*
Rex River	21B17	2400	2/27	19	2.8	0.0	12.1*
S. F. Cedar	21B6	3000	2/24	65	28.7	10.1	19.2*
Tinkham Creek	21B20	3400	2/24	73	31.3	22.8	20.6*

SNOQUALMIE RIVER

Alpine Meadow	21B48	3500	2/26	147	49.6	28.6	--
#Lake Elizabeth	21B19	2900	2/25	138	57.6	37.5	33.1*
Olallie Meadows	21B2	3625	2/20	137	61.6	37.3	40.4
S. F. Tolt	21B18	1900	2/26	12	2.5	0.0	--

SKYKOMISH RIVER

Lake Elizabeth	21B19	2900	2/25	138	57.6	37.5	33.1*
#Stevens Pass	21B1	4070	2/16	133	58.7	42.0	40.3
			2/26	152	62.1	43.9	44.4
#Stevens Pass Sand Shed	21B45	3700	2/16	93	41.0	29.6	--
			2/26	106	43.3	32.6	--

SKAGIT RIVER

Beaver Creek Trail	21A4	2200	Late Report			8.3	14.0*
Beaver Pass	21A4	2200	3/1	100	37.1	23.9	29.3*
Brown Top Ridge +	21A28a	6000	3/1	167	68.4	40.2	--
#Cloudy Pass +	20A22a	6500	3/1	122	48.8	25.5	34.9*
Devils Park	20A4	5900	3/1	116	45.5	28.6	39.1
Freezeout Cr. Trail	20A1	3500	2/5	48	17.9	9.4	--
			Late Report			10.0	12.6
Freezeout Meadows	20A2	5000	2/5	86	31.3	17.1	--
			Late Report			19.3	28.2

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SNOW

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SKAGIT RIVER (Cont.)

#Harts Pass	20A5A	6500	3/1	126	49.6	29.9	38.5
Klesilkwa	Canada	3700	2/28	53	18.8	6.7	12.2**
Lake Hozomeen	21A2	2600	2/5	53	17.7	--	--
			Late Report			6.9	9.0*
#Lyman Lake +	20A23A	5900	3/1	181	72.4	36.4	50.3*
Meadow Cabins	20A8	1900	3/1	32	10.4	3.9	7.2*
New Tashme	Canada	2500	2/28	39	15.0	8.3	10.8**
#Rainy Pass	20A9	4780	3/1	118	46.8	27.0	37.0
Thunder Basin	20A7	4200	3/1	65	24.2	16.4	20.5*

BAKER RIVER

Baker Pass	21A27a	4900	Missing			55.4	--
Dock Butte +	21A11A	3800	2/28	210	100.8	45.3	65.3*
Easy Pass +	21A7A	5200	2/28	180	86.4	48.4	82.1*
Jasper Pass +	21A6A	5400	2/28	238	114.2	61.6	87.3*
Marten Lake +	21A9A	3600	2/28	192	92.2	49.7	73.3*
Mount Blum +	21A18a	5800	2/28	143	68.6	44.0	--
#Panorama New	21A26	4300	3/1	171	78.7	47.8	--
Rocky Creek +	21A12A	2100	2/28	119	57.1	4.4	23.3*
Schreibers Meadow +	21A10A	3400	2/28	168	80.6	40.5	58.1*
S. F. Thunder Creek +	21A14A	2200	2/28	46	22.1	0.0	4.5*
Watson Lakes +	21A8A	4500	2/28	184	88.3	41.4	61.3*

NOOKSACK RIVER

Bald Mountain +	21A19a	4400	2/28	135	60.8	32.0	--
Canyon +	21A20a	5100	2/28	167	75.2	35.9	--
Glacier Creek	21A23	3700	Late Report			12.5	--
Panorama New	21A26	4300	3/1	171	78.7	47.8	--
Twin Lakes +	21A21a	5200	2/28	200	90.0	55.0	--

OLYMPIC PENINSULADUNGENESS RIVER

Deer Park	23B4	5200	2/24	57	21.6	17.0	20.8
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MORSE CREEK

Cox Valley	23B14	4500	2/28	132	42.6	29.8	--
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APPENDIX 11

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
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ELWHA RIVER

Hurricane	23B3	4500	2/25	74	23.0	14.3	21.8*
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SKOKOMISH RIVER

Black & White	23B7	4200	3/1	134	53.6	24.6	32.3*
Black & White Lakes	23B6	4700	3/1	163	68.2	45.8	49.4*
Four Streams	23B10	3000	3/1	110	44.1	13.7	--
Home Sweet Home	23B5	5200	3/1	206	82.4	52.9	64.2*
Sundown Pass	23B8	3900	3/1	190	75.2	41.7	45.4*

* Adjusted 1953-67 average

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
Weather Bureau
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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